REMARKS

I. Status of the Claims

Claims 36, 38-45, and 47-57 are pending in this application. Claims 36 and 45 are amended in this response.

II. Response to the Section 103(a) Rejections

A. Response to the § 103(a) Rejection over Ewen in view of either Turner or Tomotsu

Applicant traverses the rejection of claims 36, 38-45, and 47-57 under 35 U.S.C. § 103 as being unpatentable over either Ewen et al. (U.S. Pat. No. 5,519,100) in view of either Turner (U.S. Pat. No. 4,752,597) or Tomotsu et al. (U.S. Pat. No. 5,786,433), and he respectfully asks the Examiner to reconsider and withdraw the rejection in view of the following remarks.

Applicant has amended his claims to require that the transition metal complex contain at least one heterocyclic ligand. This amendment under 37 C.F.R. § 1.116 places the rejected claims in prima facie condition for allowance and the Examiner does not have to consider any new issues, nor does it require any additional searching on the part of the Examiner.

Unlike Ewen, Turner and Tomotsu, Applicant's amended claims require the use a transition metal compound that contains at least one heterocyclic ligand. In contrast, Ewen, Turner and Tomotsu all teach the use of standard cyclopentadienyl (non-heterocyclic) metallocenes. Most importantly, Ewen does not teach nor suggest Applicant's in situ alkylation process. In Ewen, the aluminum alkyl is used as a scavenger for poisons found in the olefin (see Col. 2, l. 38-40). There is no teaching nor suggestion to use the aluminum alkyl to in situ alkylate the metallocene, because the metallocene in Ewen is already alkylated as can be seen in the description (Col. 3, l. 39-65), where the metallocene of the invention is $(CpR_5)(CpR'_5)MQ_p$ and Q is a

"hydrocarbyl radical" and the cited examples all show dialkyl metallocenes. Ewen thus teaches the use of pre-formed alkylated metallocenes, while Applicant's current invention requires in situ alkylation of heterocyclic-containing transition metal compounds that do not contain hydrocarbyl radicals but halides, alkoxides, or amides. In fact, Applicant's Comparative Example 1 shows that using a pre-formed heterocyclic-containing transition metal compound results in much lower productivity compared to Applicant's process.

Turner and Tomotsu likewise teach the use of metallocenes, where the alkylated metallocene is pre-formed prior to olefin polymerization. Although Turner and Tomotsu both teach the use of alkoxy or chloro-containing metallocenes, these metallocenes are both alkylated prior to use in polymerization. Thus, at most the combination of Ewen with Turner or Tomotsu would lead on of ordinary skill in the art to try to pre-form a catalyst using halide (alkoxy, aryloxy, or amido) compound. The combination does not suggest Applicant's process for forming an active catalyst in-situ by adding a precatalyst produced by combining a heterocyclic-containing transition metal complex and a boron-containing ionizing agent to produce a precatalyst, followed by in-situ alkylation of the precatalyst in the polymerization system in the presence of at least one olefin monomer.

In sum, Ewen in combination with Turner or Tomotsu does not suggest Applicant's in-situ alkylation process nor its advantage for increasing catalyst activity with longer shelf-life. Accordingly, reconsideration and withdrawal of this rejection is requested.

B. <u>Response to the § 103(a) Rejection over Ewen, Turner or Tomotsu in view of Etherton</u>

Applicant traverses the rejection of claim 42 under under 35 U.S.C. § 103 as being unpatentable over Ewen, Turner or Tomotsu in view of Etherton et al. (U.S. Pat. No. 5,539,124), and he respectfully asks the Examiner to reconsider and withdraw the rejection in view of the following remarks.

As discussed above, a combination of Ewen, Turner and Tomotsu does not disclose Applicant's in-situ alkylation process nor its advantage for increasing catalyst activity with longer shelf-life. Although Etherton does disclose the use of polymerization-stable heterocyclic pyrollyl ligands in olefin polymerization catalysts, there is nothing to suggest their use in Applicant's in-situ process. Etherton does not teach the formation of a precatalyst formed by combining the pyrollyl-containing compound with a boron-containing ionizing agent, then alkylating this combination. Rather, Etherton teaches polymerization of olefins with a pyrollyl-containing catalyst in combination with methylalumoxane. Etherton does not teach the use of a boron-containing ionizing agent. Any combination of Etherton with Ewen, Turner and Tomotsu (which do teach the use of a boron-containing ionizing agent) would at most lead one of ordinary skill in the art use a pre-formed alkylated pyrollyl-containing transition metal compound and the formation of the cationic active catalyst by combining the pre-formed alkylated pyrollyl-containing transition metal compound with a boron-containing ionizing agent before addition into the polymerization system.

In sum, the combination of Ewen, Turner and Tomotsu with Etherton does not teach the use of transition metal complexes containing polymerization-stable heterocyclic ligands in Applicant's in-situ catalyst preparation process. Accordingly, reconsideration and withdrawal of this rejection is requested.

Applicant has now amended his claims to require that the transition metal complex contain at least one heterocyclic ligand. Applicant respectfully requests that the Examiner accept the Amendment under 37 C.F.R. § 1.116 since it places the rejected claims in prima facie condition for allowance and the Examiner does not have to consider any new issues, nor does it require any additional searching on the part of the Examiner.

Applicant respectfully asks the Examiner to reconsider and withdraw the rejections and pass the case to issue. Applicant invites the Examiner to telephone his agent at (610) 359-3480 if he believes that a discussion of the application might be helpful.

I hereby certify that this correspondence is being deposited with the United States Postal Service as first-class mail, with sufficient postage, in an envelope addressed to Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on May 10, 2004.

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Name of person signing

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Respectfully submitted,

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